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PRELIMINARY ISSUE

INSTALLATION INSTRUCTIONS


IIN-D350-822

Engine Advanced Protection System Installation

EUROCOPTER AS350/EC130B4 MODELS

CANADA DEPARTMENT OF TRANSPORT AIRCRAFT CERTIFICATION BRANCH DAO # 01-O-01	
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Revision	Issue Date	Description
A	13.07.31	New Issue
B	13.11.01	Updated based on initial aircraft installation

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1.0 INTRODUCTION **PRELIMINARY ISSUE**

The Dart D350-822-011 Engine Advanced Protection System (EAPS) kit provides improved engine protection against foreign object damage to the aircraft engine when installed on the Eurocopter AS350 and EC130B4 aircraft.

The D350-822-011 kit is for installation on AS350 B/BA/B2/B3 and EC130B4 helicopters equipped with Arriel Engines.

The components in the Dart kits are as defined in the table in Section 5.0 of these instructions. For convenience, only the last three digits of the part number are listed on the top row of each table. The quantity of each component which is included in the D350-822-011 EAPS Kit, for example, is as defined in the column labeled -011.

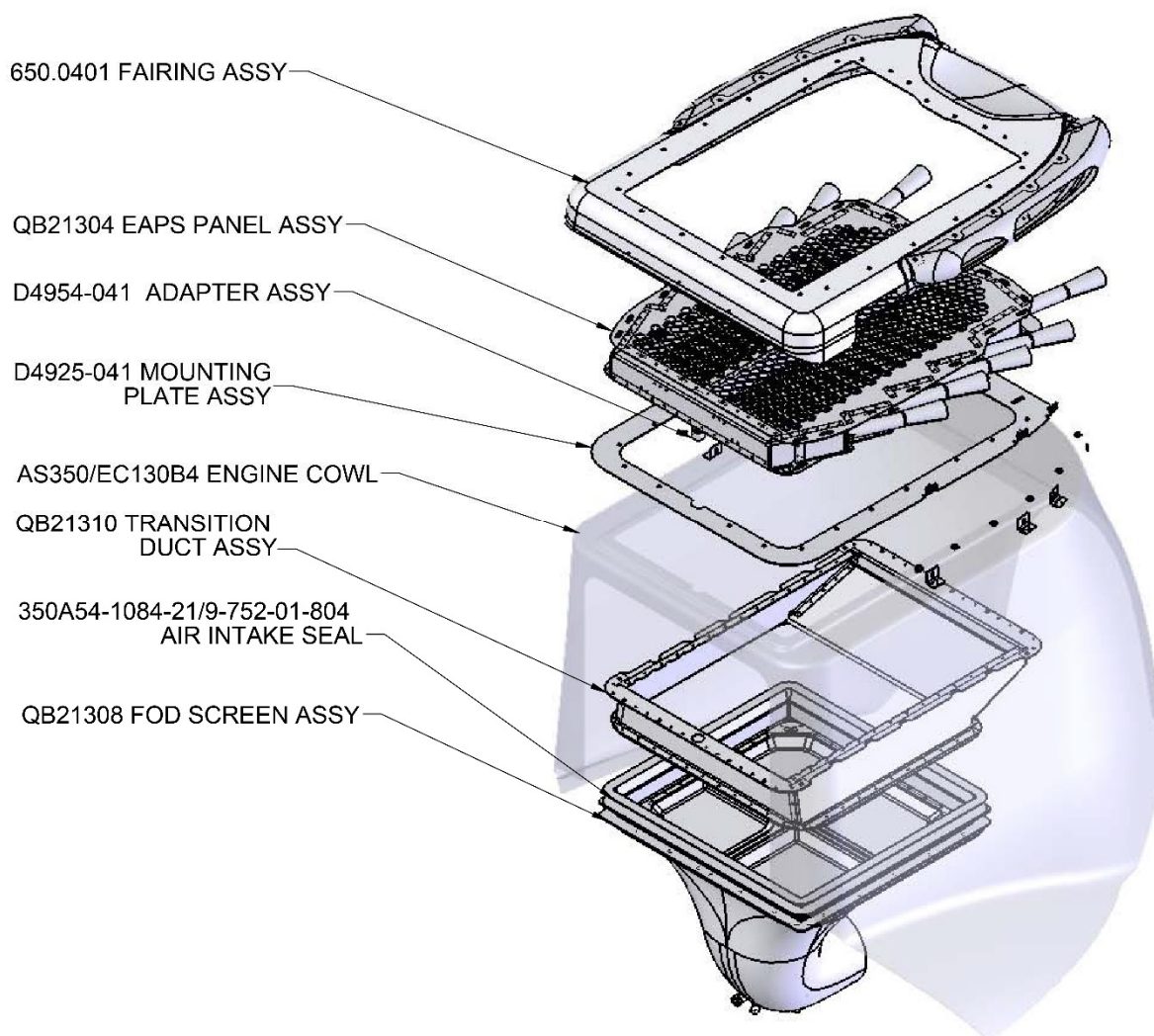


Figure 1 – D350-822-011 EAPS Installation

2.0 GENERAL NOTES

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COMPATIBILITY

Compatibility of this installation with the aircraft is the **responsibility of the installer**. Ensure that this installation does not conflict with a previous modification.

WORKMANSHIP

Unless otherwise stated, all workmanship should be to the standard set by the Aircraft Maintenance Manual.

CONTINUING AIRWORTHINESS

This installation should be maintained in accordance with the Instructions for Continued Airworthiness ICA-D350-822. Refer to Aircraft Maintenance Manual for standard shop practices not referred to in these Installation Instructions.

3.0 INSTALLATION PROCEDURE

3.1. Installation of the D350-822-011 EAPS

- 3.1.1. Remove the Upper Engine Cowl from the aircraft per the Aircraft Maintenance Manual.
- 3.1.2. Remove the 350A54-1084-21/9-752-01-804 Air Intake Seal per the Aircraft Maintenance Manual.
- 3.1.3. If installed remove existing screen/particle separator from the engine cowl per the Aircraft Maintenance Manual or STC documents.
- 3.1.4. If there is no screen/particle separator installed perform the following to the upper engine cowl:
 - 3.1.4.1 For older model aircraft remove the aluminum plate installed on the cowling (see Figure 2). Using the D4925-041 EAPS Mounting Plate Assembly as a template, mark and cut out the opening for the D4954-041 Adapter Assy. For Aluminum cowlings touch up finish per the aircraft maintenance manual.

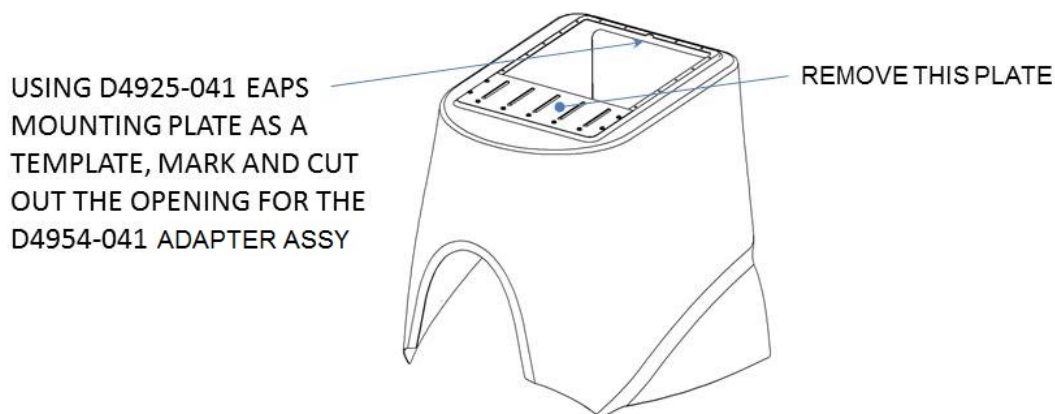


Figure 2: Cowl Plate Removal

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- 3.1.4.2 For newer model aircraft with all composite cowlings it will be necessary to cut the cowling as shown in Figure 3. The D4925-041 EAPS Mounting Plate Assy can be used as a template for the cutout. Repair the cut edge of the cowling per the Aircraft Maintenance Manual.

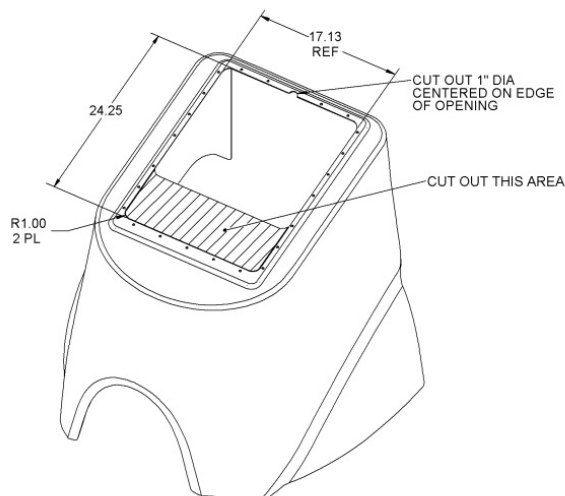


Figure 3: Engine Cowl Cutout

- 3.1.5. Remove the 650.0401 EAPS Fairing Assembly from the QB21304 EAPS Panel. Retain the fasteners.
- 3.1.6. Install the D4954-041 Adapter Assy onto the QB21328 Manifold located on the QB21304 EAPS Panel. Torque nut to 100 ft-lb.

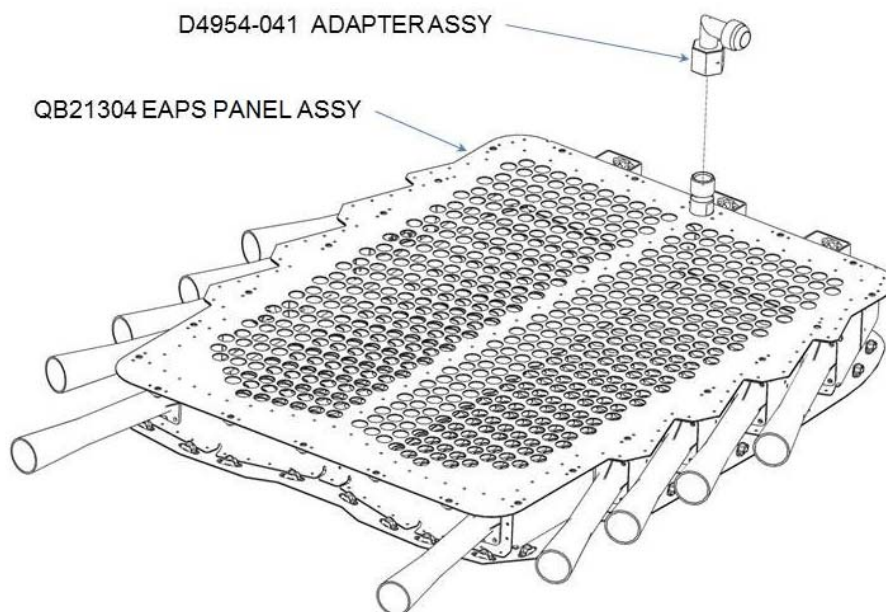


Figure 4: D4954-041 Adapter Assy Installation

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- 3.1.7. From the lower front face of the QB21304 EAPS Panel Assy, remove (from the left or right side) every second rivet (6 places). Install three D4922-041 Bracket Assemblies using MS20600AD4W4 Rivets (2 per bracket) as shown in Figure 5.

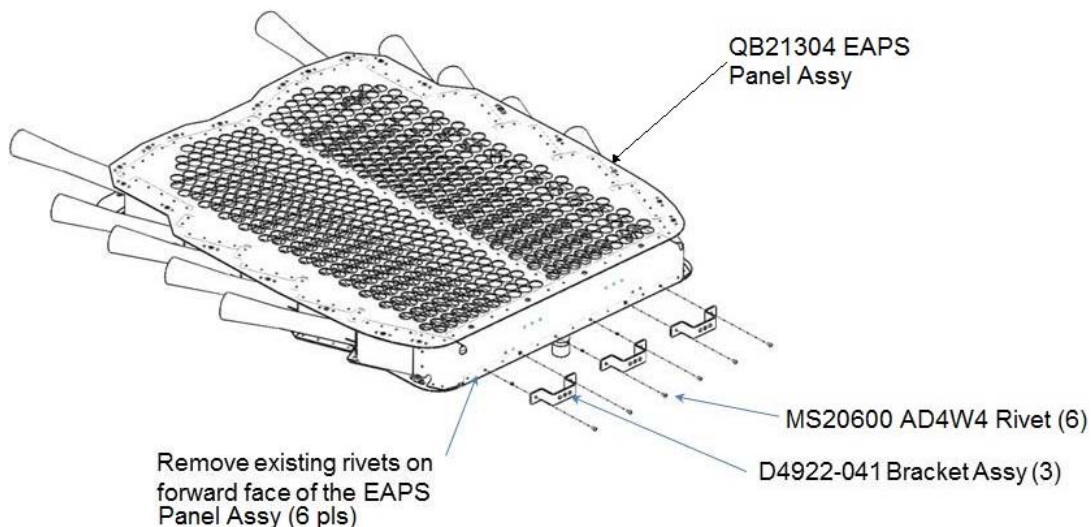


Figure 5– D4922-041 Bracket Installation

- 3.1.8. Align the D4925-041 EAPS Mounting Plate with the existing holes in the Engine Cowl.
- 3.1.9. Place the QB21304 EAPS Panel over the D4925-041 EAPS Mounting Plate and maintain alignment with the existing holes in the Engine Cowl.
- 3.1.10. Fasten the QB21304 EAPS panel and the D4925-041 EAPS Mounting Plate to the Engine Cowl using Qty (10) LN9038-05-14 bolts and Qty (10) BS4320-A5 washers (5 per side). See Figure 6.

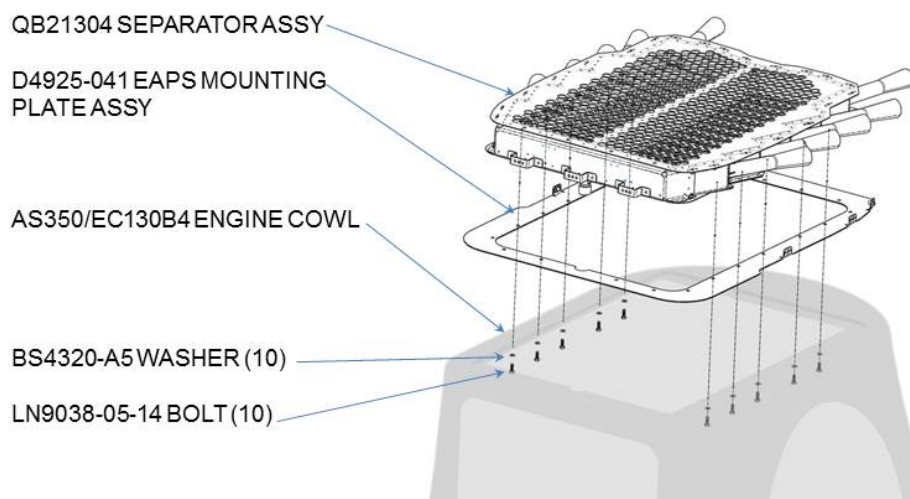


Figure 6- EAPS Panel Assy/D4925-041 Mounting Plate Installation

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- 3.1.11. From the underside of the Engine Cowl, align the QB21310 Transition Duct Assy to the existing holes in the cowl using Qty (13), LN9038-05-14 bolts and Qty (13) BS4320-A5 washers (6 on forward side, 7 on aft side). See Figure 7.

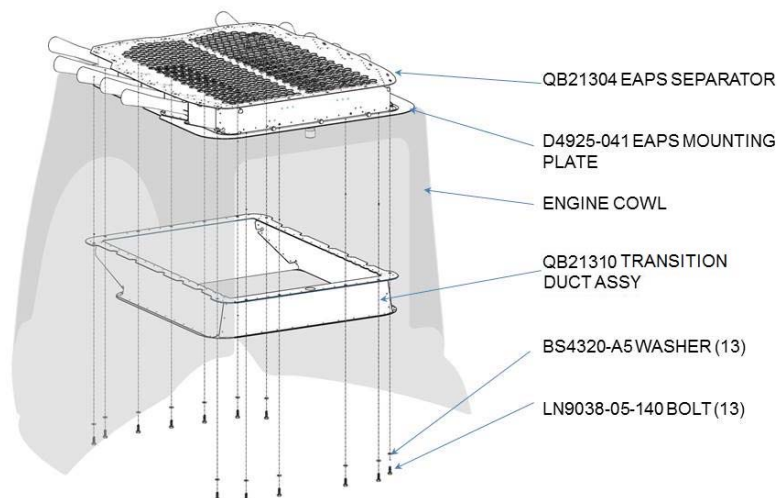


Figure 7- QB21310 Duct Assembly Installation

- 3.1.12. Re-install the 650.0410 EAPS Fairing onto the QB21304 EAPS Panel using Qty (26) LN9038-05-14 bolts and Qty (26) BS4320-A5 washers into the top side of the 650.0410 EAPS Fairing. Install Qty (3) LN9038-05-14 bolts and Qty (3) BS4320-A5 washers into the front side of the 650.0410 EAPS Fairing. See Figure 8.

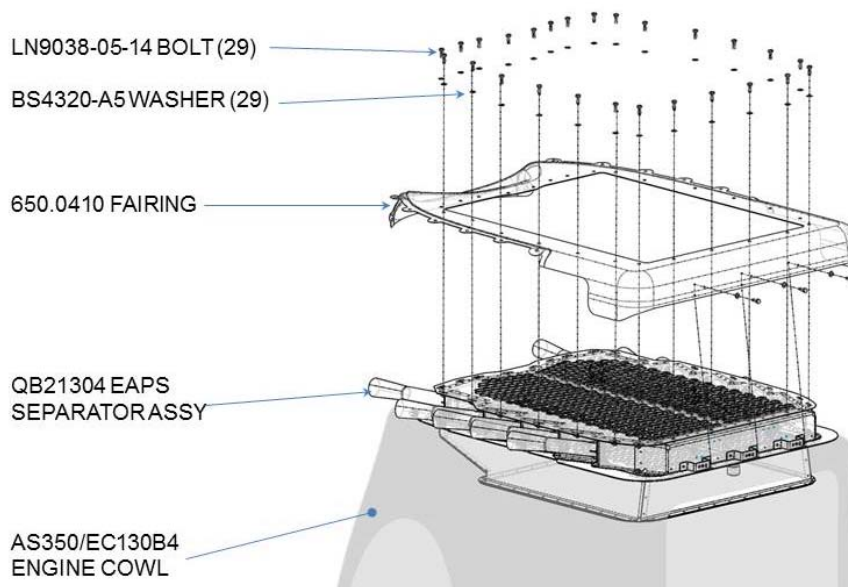


Figure 8 - Fairing Installation

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- 3.1.13. Loosely attach the D4935-1 Mounting Brackets to the D4925-041 Mounting Plate.
- 3.1.14. Attach the 650.0412 Left Ejector Fairing to the 650.0410 Fairing.
- 3.1.15. Tighten the D4935-1 Mounting Brackets onto the D4925-041 Mounting Plate.
- 3.1.16. Mark the 3 hole centers from the mounting bracket base onto the Ejector Fairing.
- 3.1.17. Remove the 650.0412 Left Ejector Fairing from the 650.0410 Fairing.
- 3.1.18. Remove the D4935-1 Mounting Brackets from the D4925-041 Mounting Plate
- 3.1.19. Drill 3 x $\varnothing 0.098$ " diameter holes per mounting bracket. Rivet the mounting brackets to the side fairing using Qty (3) MS20470AD3-4 Rivets per bracket per Figure 9.

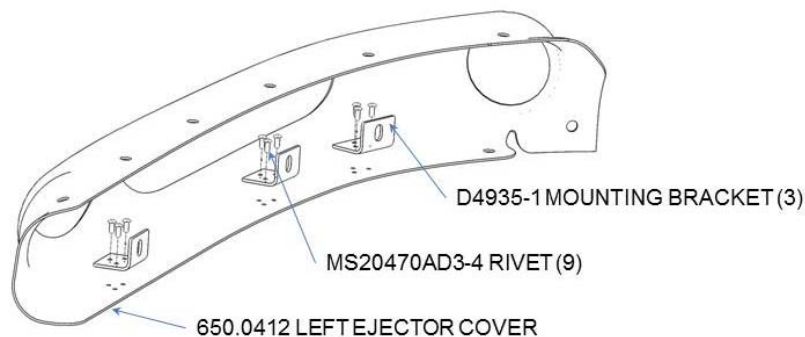


Figure 9 – Ejector Fairing Assembly

- 3.1.20. Re-assemble the 650.0412 Ejector Fairing on to the 650.0410 Fairing by securing the Ejector Fairing to the mating flange on the D4925-041 Mounting Plate using Qty (4) MS35207-279 Screws and Qty (4) NAS1149C0432R Washers through the D4935-1 Mounting Brackets per Figure 10.

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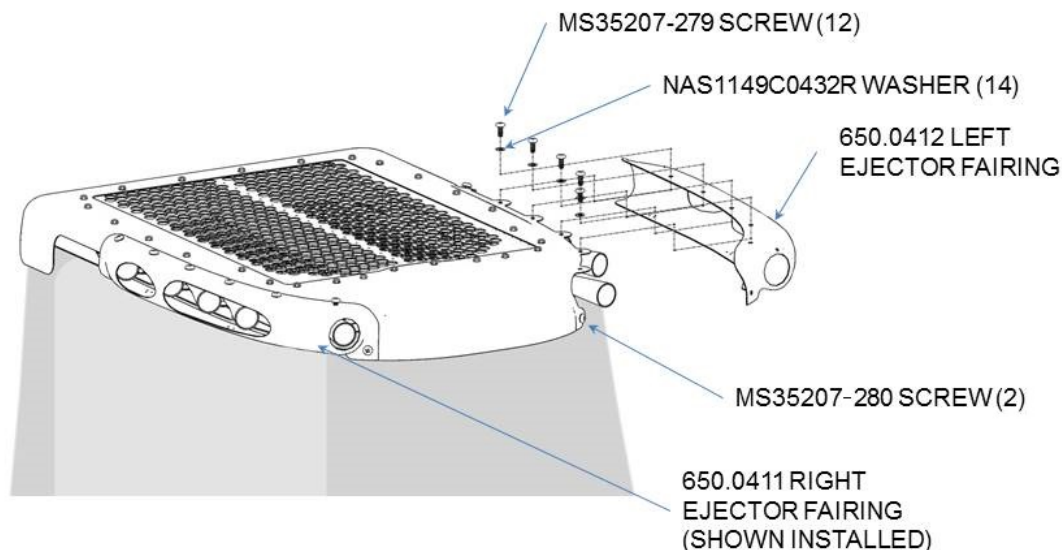


Figure 10 – Ejector Cover Installation

3.1.21. Assemble the D4935-1 Mounting Brackets to the Mating flanges on the left side of the D4925-041 Mounting Plate using Qty (3) MS35207-279 Screws and Qty (3) NAS1149C0432R Washers per Figure 11.

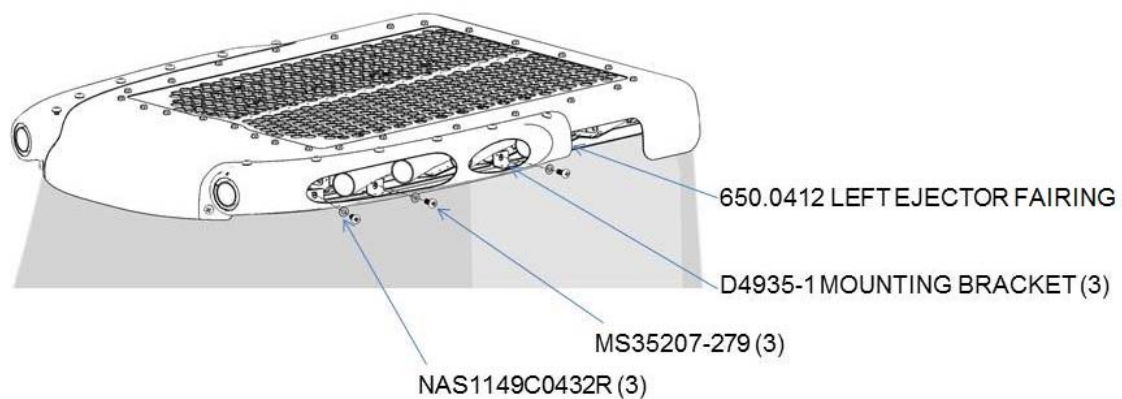


Figure 11 – D4935-1 Mounting Bracket Installation

3.1.22. Repeat steps 3.1.14 – 3.1.21 for the 650.0411 Right Ejector Fairing on the right side.

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- 3.1.23. Install the QB21308 FOD Screen in between the Engine and the 350A54-1084-21/9-752-01-804 Air Intake Seal as shown in Figure 12.

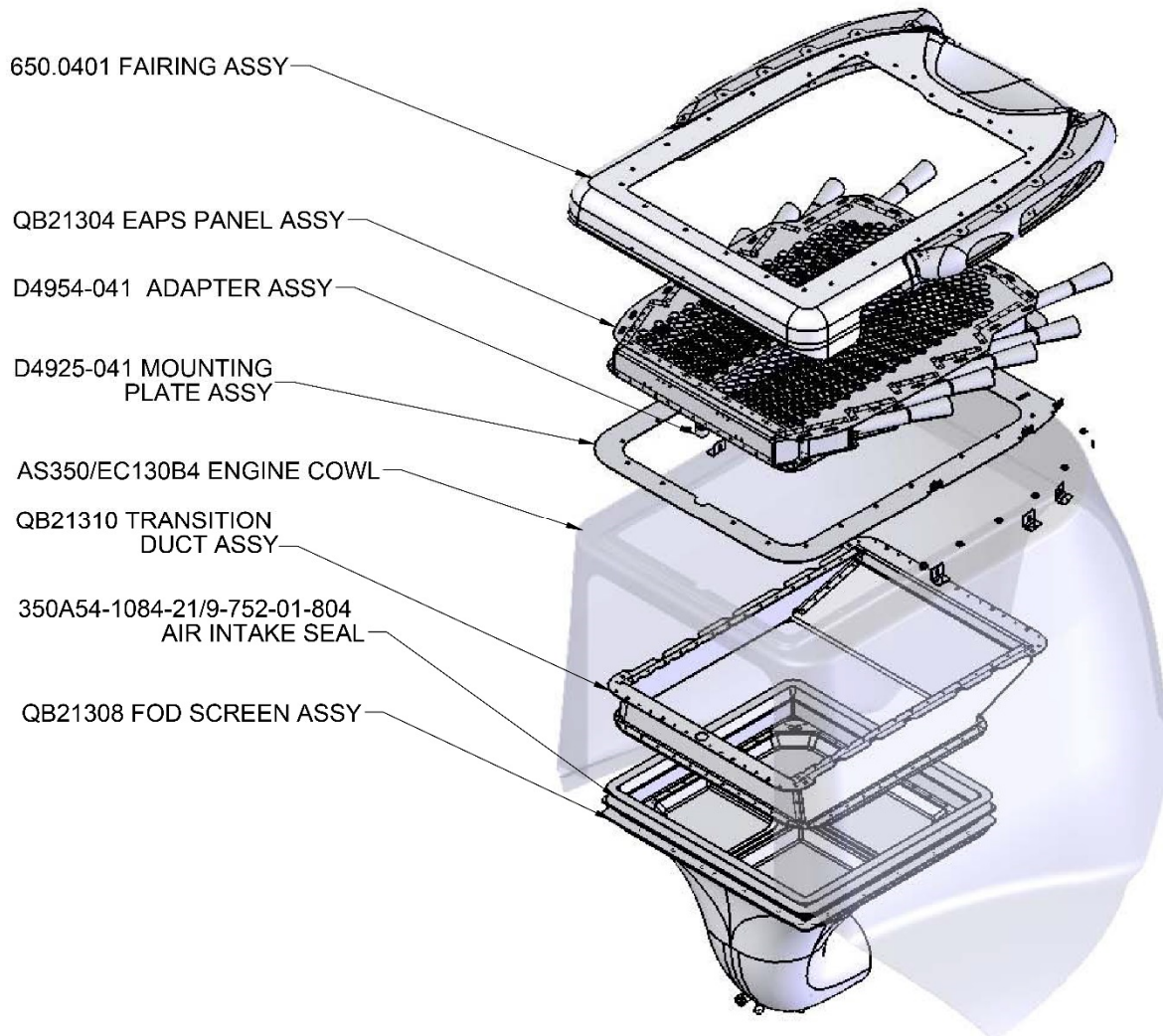


Figure 12 – FOD Screen Installation

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- 3.1.24. Re-install the upper Engine Cowl onto the aircraft per the Aircraft Maintenance Manual.
- 3.1.25. Attach the D4961-041 Tube Assembly to the D4954-041 Adapter Assy. The adapter needs to point towards the RH side of the aircraft. Attach the AN821-12J elbow to the D4961-041 Tube Assembly. Attach the D4943-1 Flex Hose to the AN821-12J elbow.
- 3.1.26. Attach the D4961-041 Tube Assembly to the QB21310 Transition Duct Assy using an AN3-24A Bolt, a MS21919WHG12 Clamp, three NAS1149D0332J Washers and a NAS43DD3-131 Spacer.
- 3.1.27. Remove any adapters from the P2 outlet with the proper gasket on the RH side of the engine. Determine which of the D4931-1/-3/-5 Engine Fittings is applicable by comparing mounting holes.
- 3.1.28. Attach the D4931-X Engine Fitting to the P2 outlet with proper gasket on the RH side of the engine.
- 3.1.29. Attach the D4943-1 Flex Hose to the D4931-X Engine Fitting. Route the flexline along the top of the cowl and then curve it down to the engine fitting.
- 3.1.30. Open and close the cowl several times and verify that the flexline does not interfere with the intake or any other engine accessory or the cowl itself.
- 3.1.31. Update Aircraft log book to indicate installation of the D350-822-011 EAPS Installation and adjust weight and balance record for the aircraft with the weight and balance data provided in Section 4 of this document.

4.0 WEIGHT AND BALANCE

The following table shows the total weight of the EAPS Installation. It is the responsibility of the installer to determine the net weight increase, which will be dependent on the type of filter/particle separator that is removed from the aircraft during this installation.

Installation	Weight	LATERAL		LONGITUDINAL	
		Arm	Moment	Arm	Moment
D350-822-011 <i>EAPS Installation</i>	28.1 lb 12.6 kg	0 in 0 m	0 lb-in 0 m-kg	163.35 in 4.15 m	4590.1 in-lb 52.3 m-kg

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5.0 PARTS LIST

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QTY -011	PART NUMBER	DESCRIPTION
X	D350-822-011	EAPS INSTALLATION
1	QB21304	EAPS PANEL ASSY
1	QB21310	TRANSITION DUCT ASSY
1	QB21308	FOD SCREEN ASSY
54	BS4320-A5	WASHER
54	LN9038-05-14	BOLT
1	650.0401	EAPS FAIRING ASSY
4	D4922-041	BRACKET ASSEMBLY
1	D4925-041	MOUNTING PLATE ASSY
1	D4931-1	ENGINE FITTING (FOR ACFT MODELS B2 AND PREVIOUS)
1	D4931-3	ENGINE FITTING (FOR B3 MODELS)
1	D4931-5	ENGINE FITTING (FOR B3e MODELS)
6	D4935-1	MOUNTING BRACKET
1	D4943-1	FLEX HOSE
4	D4954-041	ADAPTER ASSY
1	D4961-041	TUBE ASSEMBLY
1	8411999090	GASKET (FOR B2 MODELS AND PREVIOUS)
1	9752018044	GASKET (FOR B3 MODELS)
1	9945000120	GASKET (FOR B3e MODELS)
1	AN3-24A	BOLT
1	AN821-12J	ELBOW (OR AN821-12K OR AN821-12S)
18	MS20470AD3-4	RIVET
6	MS20600AD4W4	RIVET
1	MS21919WHG12	CLAMP
18	MS35207-279	SCREW
2	MS35207-280	SCREW
20	NAS1149C0432R	WASHER
3	NAS1149D0332J	WASHER
1	NAS43DD3-131	SPACER

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